EMX-780E

AMD Athlon/ Athlon X2/ Quad-Core™ AMD Phenom™ Mini ITX Motherboard with AMD RS780E + SB710 Chipset

Quick Installation Guide

1st Ed – 6 August 2011

Part No. E2017780E00R

FCC Statement

THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.

(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES.

THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTATLLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

Notice

This guide is designed for experienced users to setup the system within the shortest time. For detailed information, please always refer to the electronic user's manual.

Copyright Notice

Copyright © 2011 Avalue Technology Inc., ALL RIGHTS RESERVED.

No part of this document may be reproduced, copied, translated, or transmitted in any form or by any means, electronic or mechanical, for any purpose, without the prior written permission of the original manufacturer.

1. Getting Started

1.1 Safety Precautions

Warning!

Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Caution!

Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

Always note that improper disassembling action could cause damage to the motherboard. We suggest not removing the heatsink without correct instructions in any circumstance. If you really have to do this, please contact us for further support.

1.2 Packing List

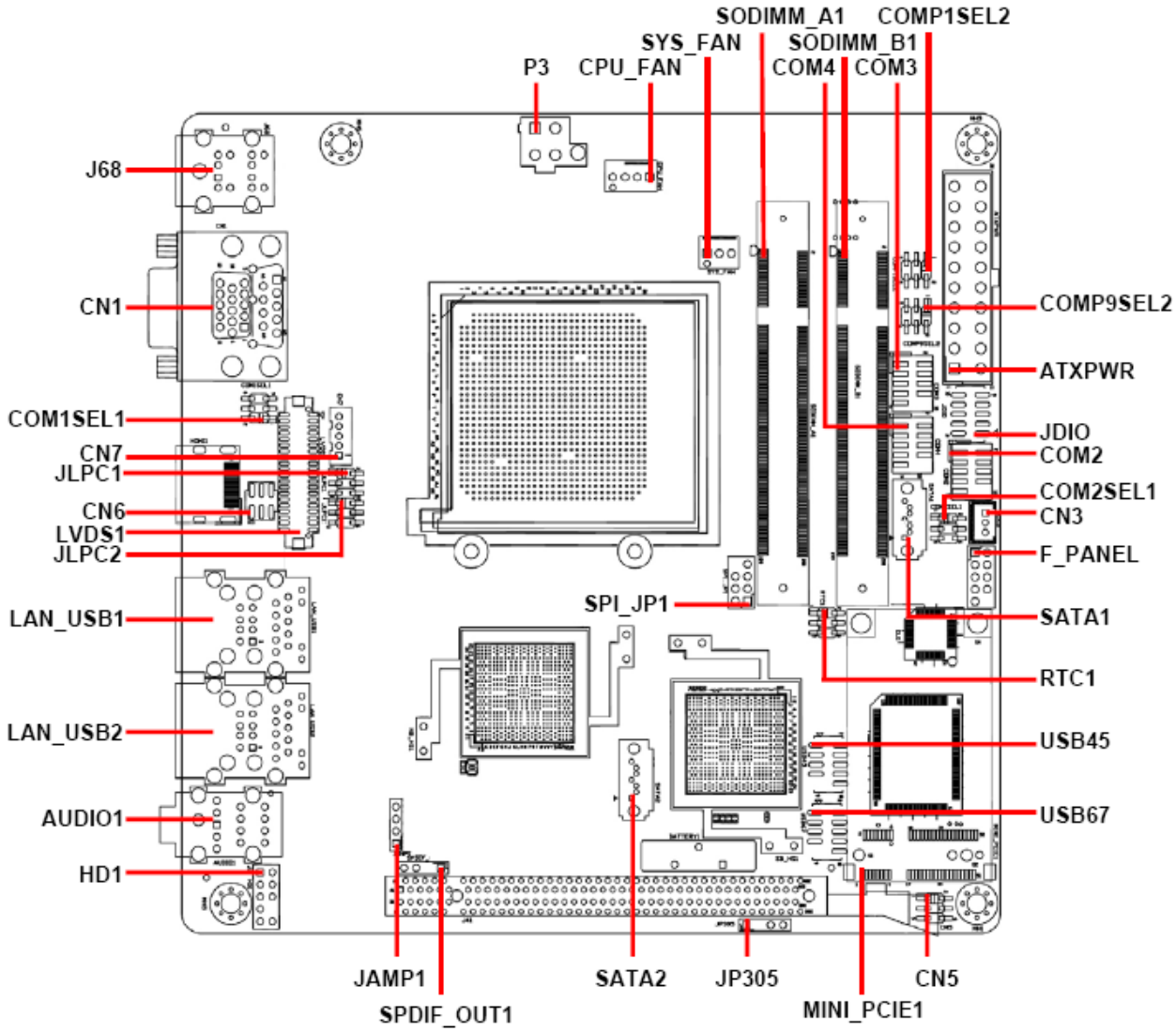
Before you begin installing your single board, please make sure that the following materials have been shipped:

- 1 x EMX-780E Mini ITX Main Board
- 2 x SATA Cable kit
- 1 x DVD-ROM contains the followings:
  - User's Manual (this manual in PDF file)
  - LAN drivers and utilities
  - Audio drivers and utilities

If any of the above items is damaged or missing, contact your retailer.

2. Hardware Configuration

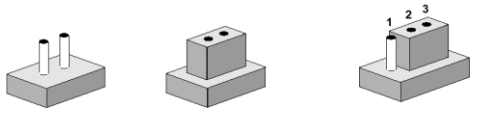
2.1 Product Overview



2.2 Jumper and Connector List

You can configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch.

It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the pins with the clip. To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either two pins.



Open Closed Closed 2-3

The jumper settings are schematically depicted in this manual as follows:

Open Closed Closed 2-3

A pair of needle-nose pliers may be helpful when working with jumpers.

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

The following tables list the function of each of the board’s jumpers and connectors.

Jumpers

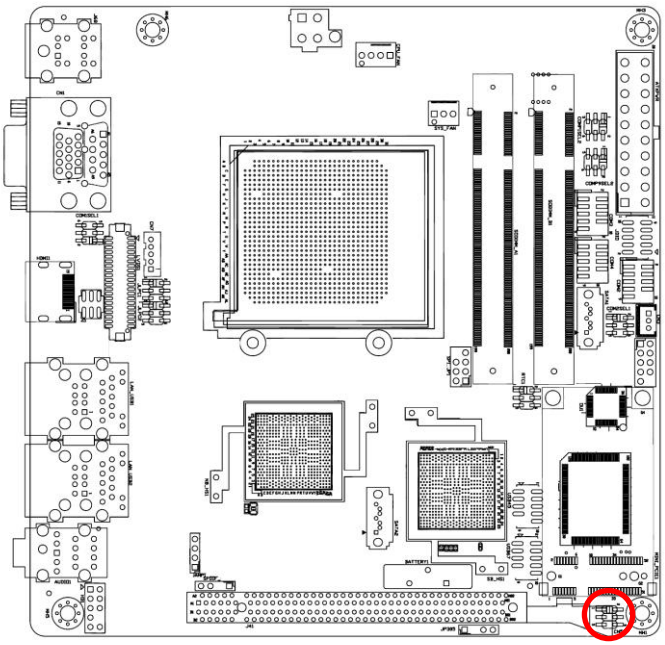
Label	Function	Note
CN5	CF mode select	3 x 2 header, pitch 2.0mm
CN6	LVDS power select	3 x 2 header, pitch 2.0mm
COM1SEL1	Serial port 1 pin-9 signal select	3 x 2 header, pitch 2.0mm
COM2SEL1	Serial port 1 pin-10 signal select	3 x 2 header, pitch 2.0mm
COMP1SEL2	Serial port 3 pin-9 signal select	3 x 2 header, pitch 2.0mm
COMP9SEL2	Serial port 4 pin-9 signal select	3 x 2 header, pitch 2.0mm
JP305	Case Open	4 x 1 header, pitch 2.54mm
RTC1	Clear password & COMS select	3 x 2 header, pitch 2.0mm

Connectors

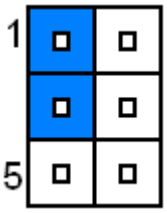
Label	Function	Note
ATXPWR	ATX power supply connector	10 x 2 header, pitch 2.54mm
AUDIO1	Audio connector	
CN1	VGA and serial port 1 connecter	
CN3	SMB CLK & SMB DATA connector	3 x 1 wafer, pitch 1.54mm
COM2	Serial port 2 connector	5 x 2 header, pitch 2.0mm
COM3	Serial port 3 connector	5 x 2 header, pitch 2.0mm
COM4	Serial port 4 connector	5 x 2 header, pitch 2.0mm
CPU_FAN	CPU fan connector	3 x 1 wafer, pitch 254mm
F_PANEL	System panel connector	5 x 2 header, pitch 2.54mm
HD1	Audio header connector	5 x 2 header, pitch 2.54mm
J68	PS/S keyboard & mouse connector	
JAMP1	Amplifier connector	4 x 1 header, pitch 2.54mm
JDIO	General purpose I/O connector	5 x 2 header, pitch 2.0mm
LVDS1	LVDS connector	Hirose DF13-40DP-1.25V
LAN_USB1	Rear USB connector 0 & 1	
LAN_USB2	Rear USB connector 2 & 3	
MINI_PCIE1	PCI express mini card	
P3	VRM power supply connector	Wafer box 4p, pitch 4.2mm
SATA1	Serial ATA connector 1	
SATA2	Serial ATA connector 2	
SODIMM_A1	200-pin DDR2 SODIMM socket	
SODIMM_B1	200-pin DDR2 SODIMM socket	
SPDIF_OUT1	SPDIF out connector	4 x 1 header, pitch 2.54mm
SPI_JP1	SPI BIOS ROM connector	4 x 2 header, pitch 2.54mm
SYS_FAN	System fan connector	3 x 1 wafer, pitch 254mm
USB45	USB connector 4 & 5	5 x 2 header, pitch 2.0mm
USB67	USB connector 6 & 7	5 x 2 header, pitch 2.0mm

2.3 Setting Jumpers & Connectors

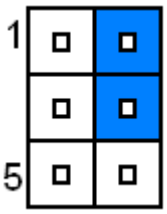
2.3.1 CF mode select (CN5)



Low: Master*

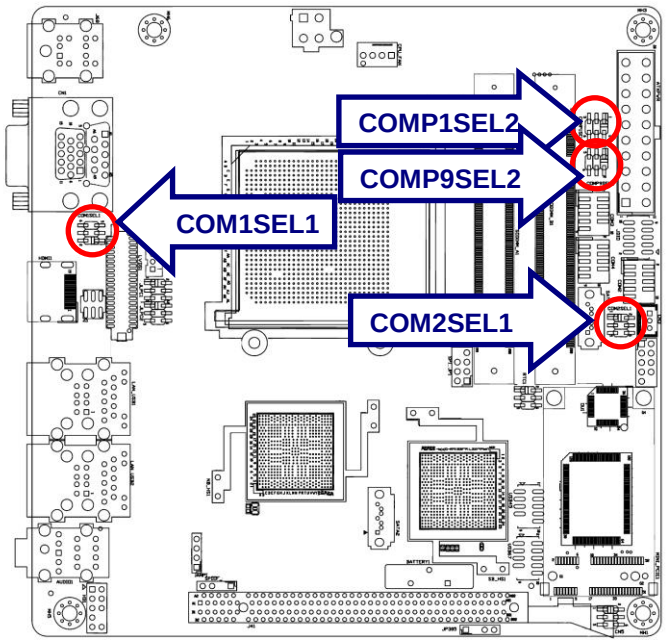


Hi: Slave

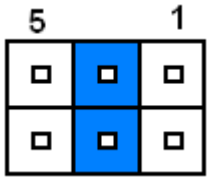


***Default**

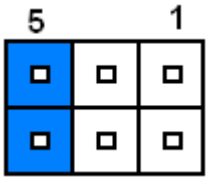
2.3.2 Serial port 1/ 2/ 3/ 4 pin-9 signal select (COM1SEL1/ COM2SEL1/ COMP1SEL2/ COMP9SEL2)



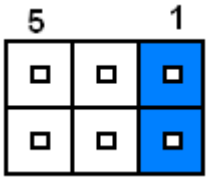
Ring*



+5V

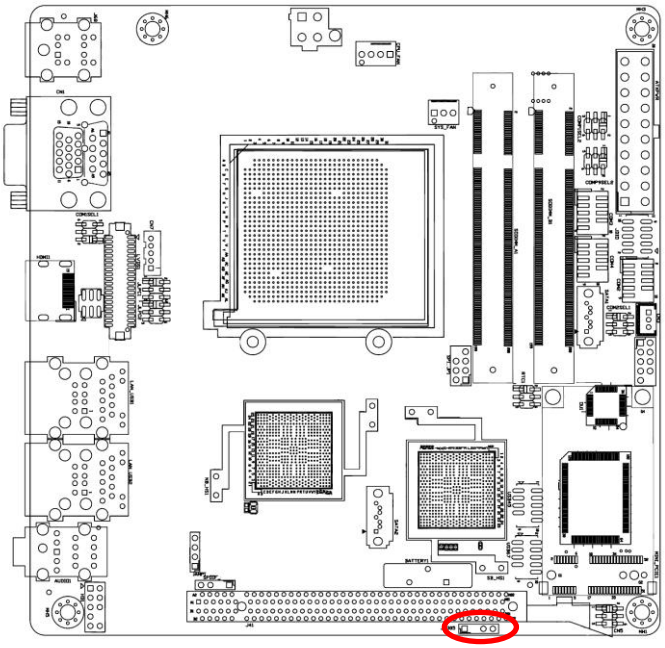


+12V+

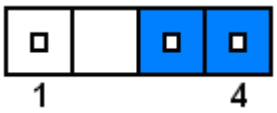


***Default**

2.3.3 Case open (JP305)

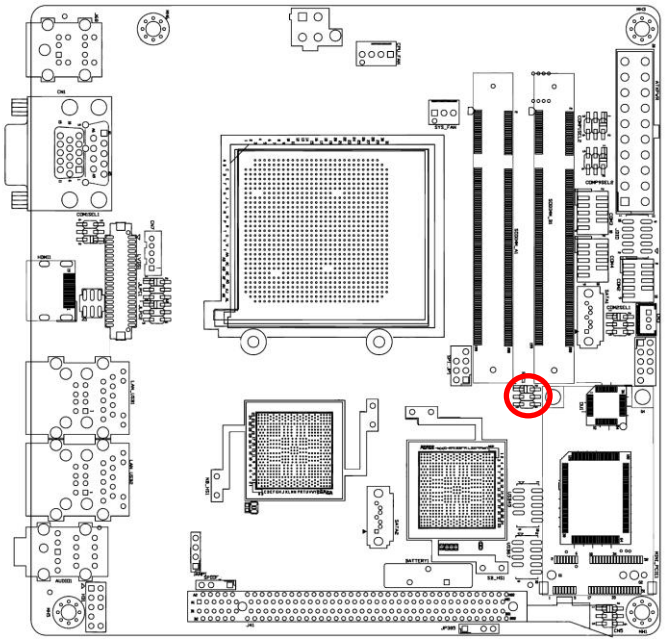


Open*

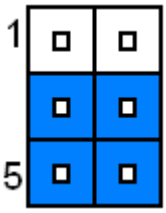


***Default**

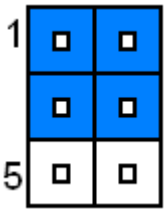
2.3.4 Clear password & CMOS select (RTC1)



Password & CMOS*



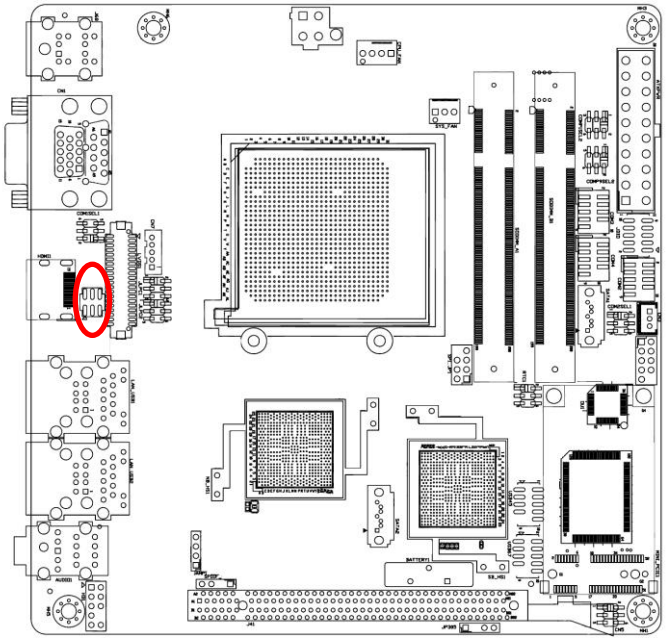
Clear

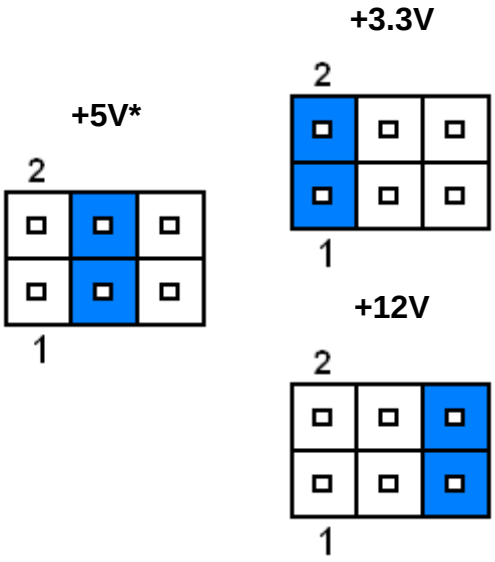


***Default**

Clear password & CMOS		
	Clear PW	Clear CMOS
Default	3-5	4-6
Clear	1-3	2-4

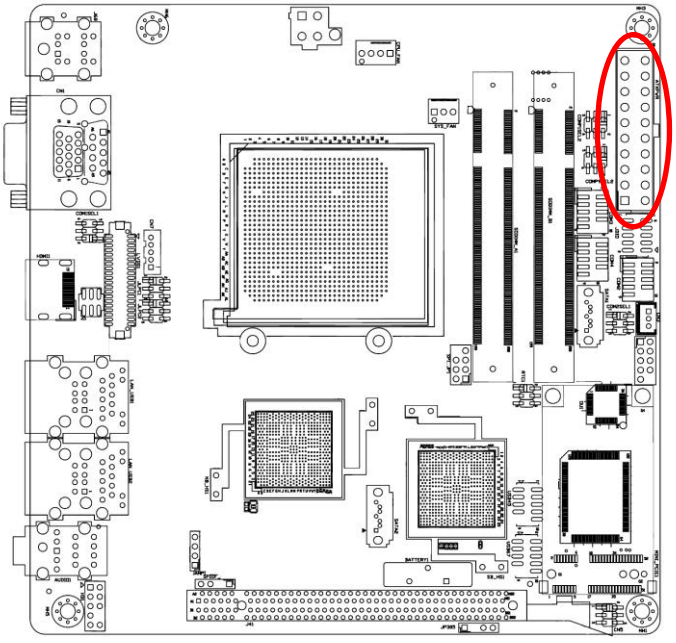
2.3.5 LVDS power select (CN6)

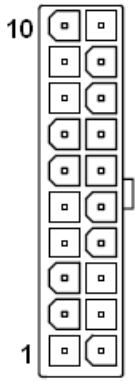




***Default**

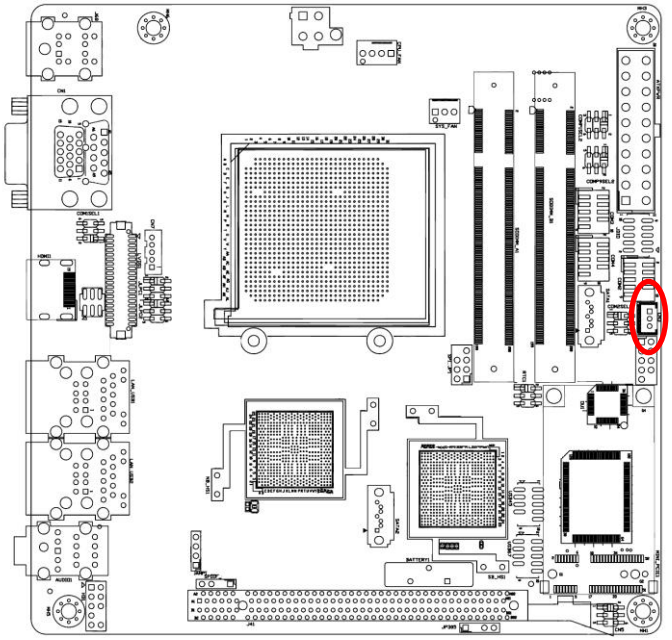
2.3.6 ATX power supply connector (ATXPWR)

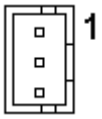




Signal	PIN	PIN	Signal
+12V	10	20	+5V
5VSB	9	19	+5V
POK	8	18	-5V
GND	7	17	GND
+5V	6	16	GND
GND	5	15	GND
+5V	4	14	PSON
GND	3	13	GND
+3.3V	2	12	-12V
+3.3V	1	11	+3.3V

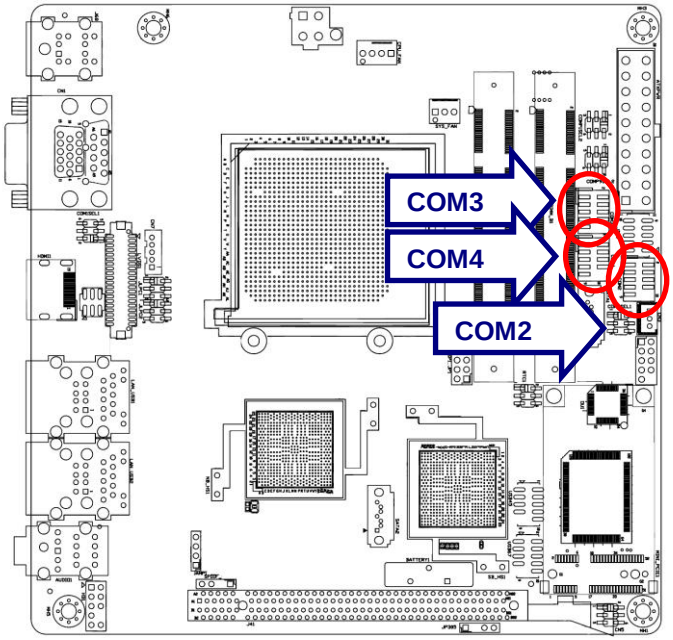
2.3.7 SMB CLK & SMB DATA connector (CN3)

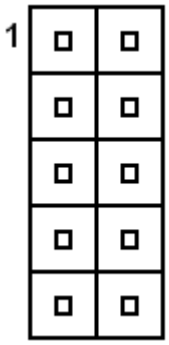




PIN	Signal
1	SMBCLK_PCI
2	SMBDATA_PCI
3	GND

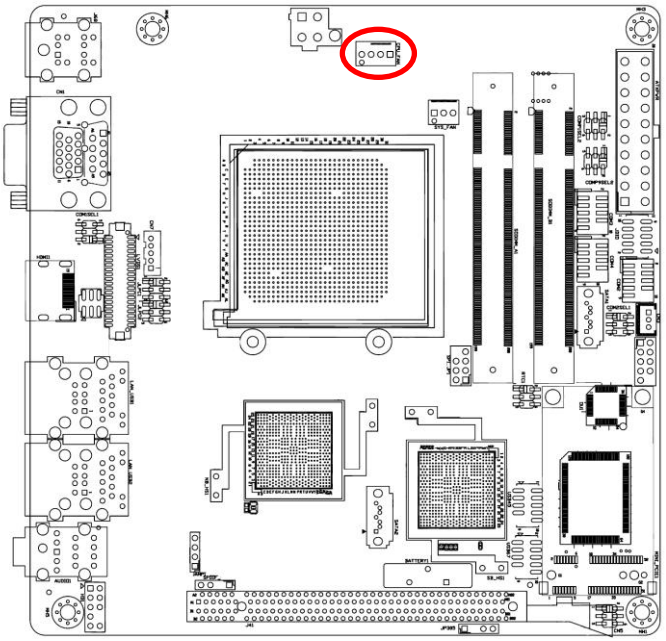
2.3.8 Serial port 2/ 3/ 4 connector (COM2/ COM3/ COM4)

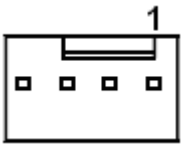




Signal	PIN	PIN	Signal
DCD	1	2	RxD
TxD	3	4	DTR
GND	5	6	DSR
RTS	7	8	CTS
RI	9	10	NC

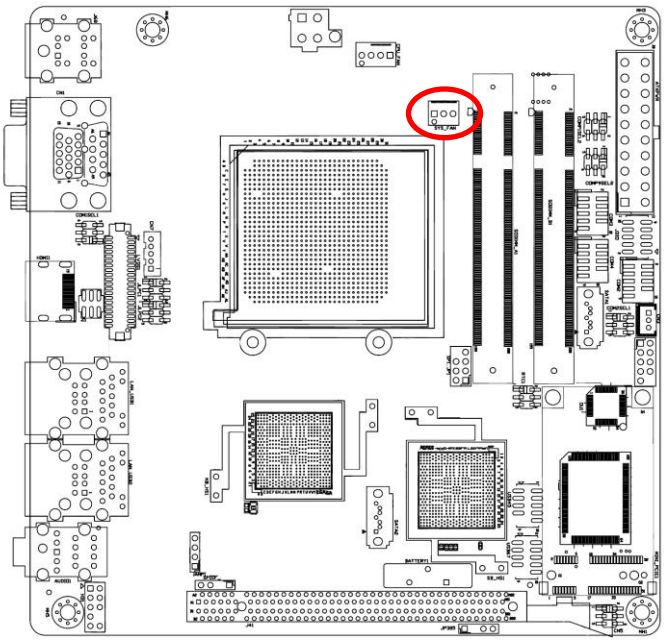
2.3.9 CPU Fan (CPU_FAN)

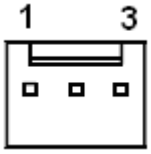




PIN	Signal
1	GND
2	+12V
3	CFAN_TACH
4	NC

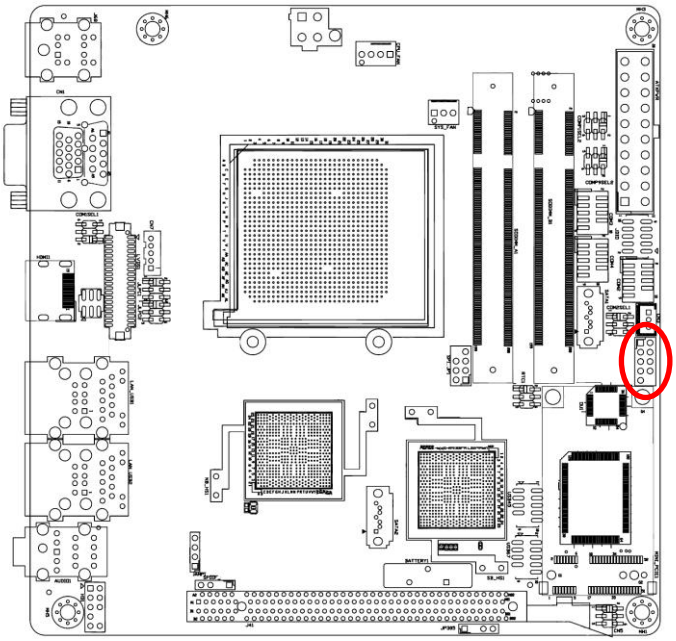
2.3.10 System Fan (SYS_FAN)

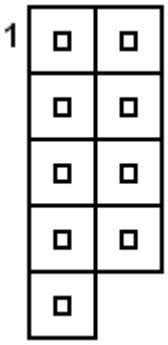




PIN	Signal
1	FFAN_TACH
2	+12V
3	GND

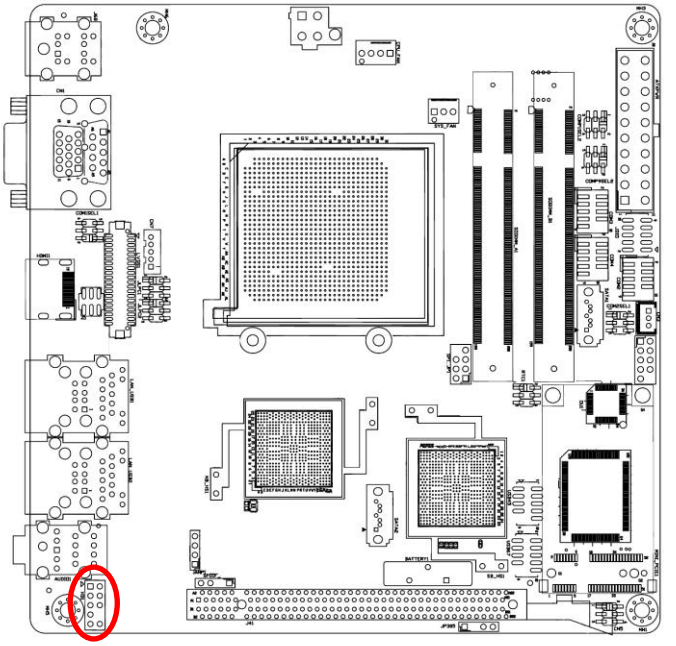
2.3.11 System panel connector (F_PANEL)

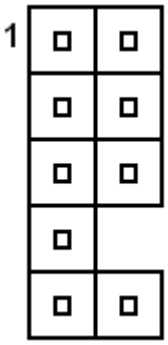




Signal	PIN	PIN	Signal
HDLED+	1	2	FP_LED+
HDLED-	3	4	FP_LED-
GND	5	6	PWRBTN
RESET	7	8	GND
NC	9		

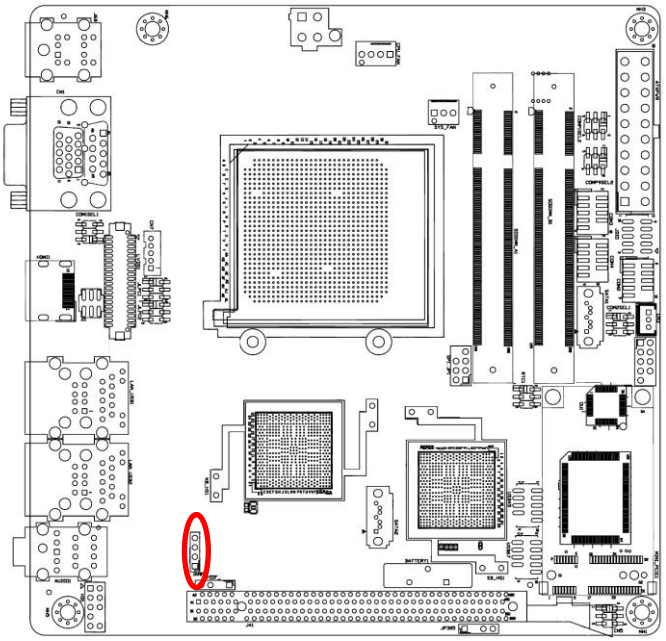
2.3.12 Audio header connector (HD1)





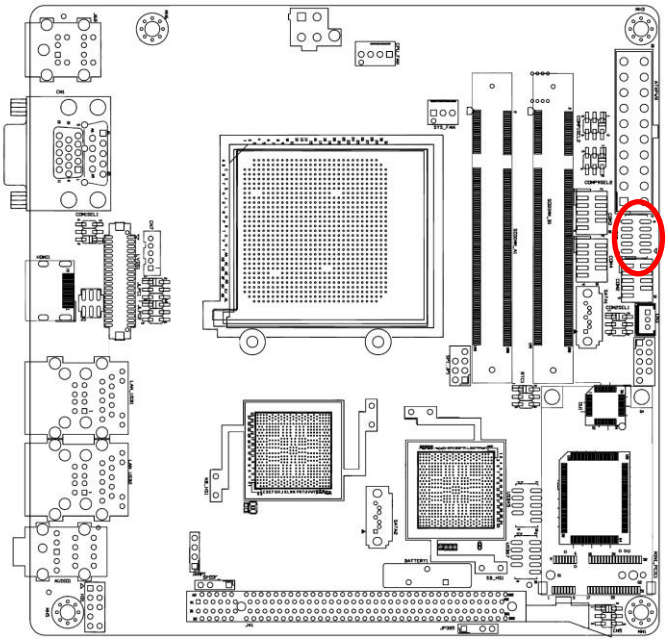
Signal	PIN	PIN	Signal
APORT_F_L	1	2	GND
APORT_F_R	3	4	+3.3V
APORT_E_R	5	6	GND
FRONT-IO-SENSE	7		
APORT_E_L	9	10	GND

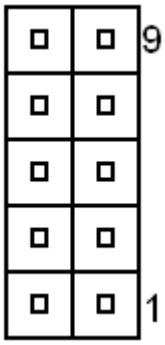
2.3.13 Amplifier connector (JAMP1)



PIN	Signal
4	AMP_R+
3	AMP_R-
2	AMP_L+
1	AMP_L-

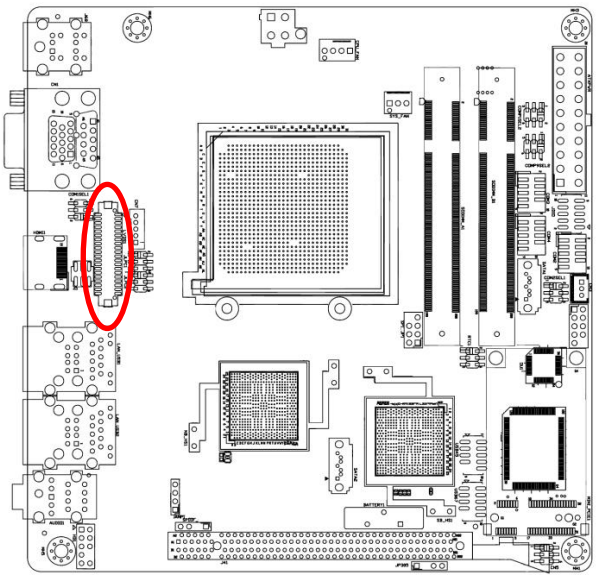
2.3.14 General purpose I/O connector (JDIO)

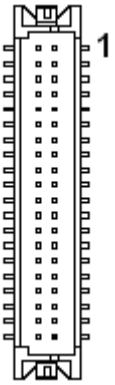




Signal	PIN	PIN	Signal
+5V	10	9	GND
DIO7	8	7	DIO3
DIO6	6	5	DIO2
DIO5	4	3	DIO1
DIO4	2	1	DIO0

2.3.15 LVDS connector (LVDS1)





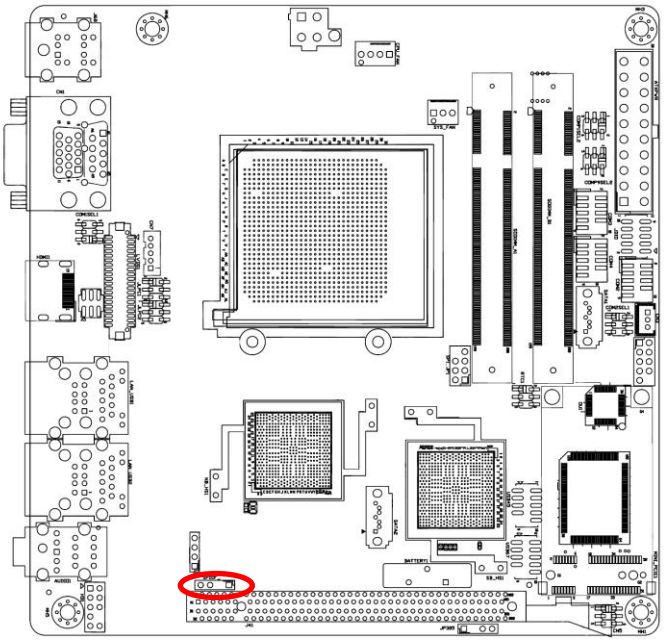
Signal	PIN	PIN	Signal
LVDS_Power	2	1	LVDS_Power
GND	4	3	GND
LVDS_Power	6	5	LVDS_Power
LVDS1_OUTD 0-	8	7	LVDS0_OUTD0-
LVDS1_OUTD0+	10	9	LVDS0_OUTD0+
GND	12	11	GND
LVDS1_OUTD1-	14	13	LVDS0_OUTD1-
LVDS1_OUTD1+	16	15	LVDS0_OUTD1+
GND	18	17	GND
LVDS1_OUTD2-	20	19	LVDS0_OUTD2-
LVDS1_OUTD2+	22	21	LVDS0_OUTD2+
GND	24	23	GND
LVDS1_OUTD CLK-	26	25	LVDS0_OUTD CLK-
LVDS1_OUTDCLK+	28	27	LVDS0_OUTDCLK+
GND	30	29	GND
I2C_DATA	32	31	I2C_CLK
GND	34	33	GND
LVDS1_OUTD3-	36	35	LVDS0_OUTD3-
LVDS1_OUTD3+	38	37	LVDS0_OUTD3+
GND	40	39	NC

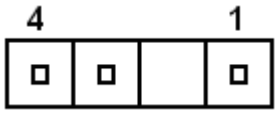
NOTE:

Pin1/ 2/ 5/ 6 are selected by CN6.

Please refer to section 2.3.5 for more information.

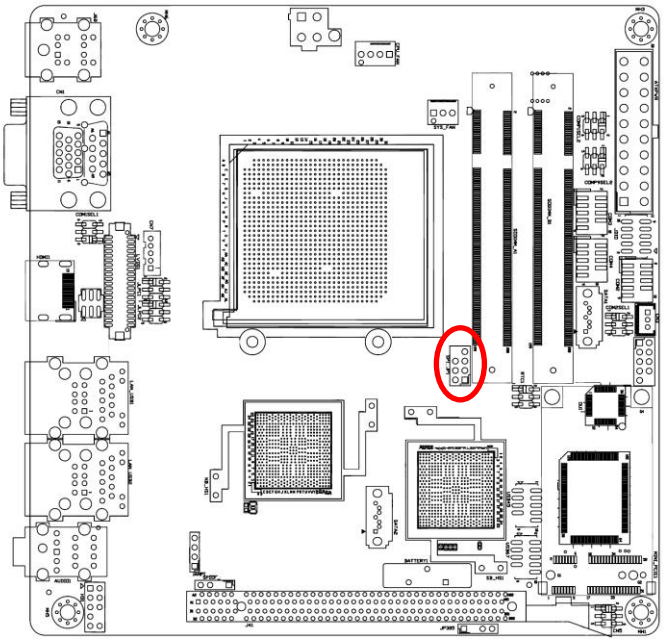
2.3.16 SPDIF out connector (SPDIF_OUT1)

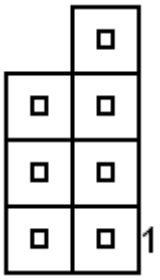




PIN	Signal
1	+5V
3	SPDIF_O
4	GND

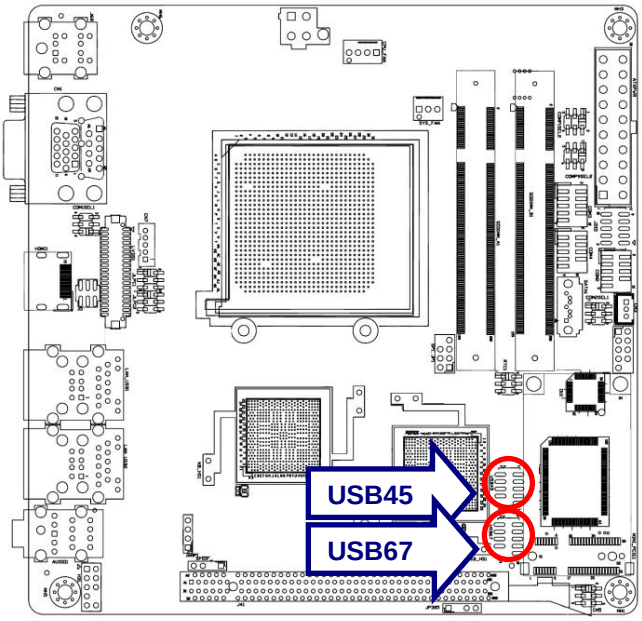
2.3.17 SPI BIOS ROM out connector (SPI_JP1)

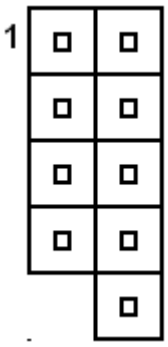




Signal	PIN	PIN	Signal
		7	SPI_HOLD#
SPI_MOSI	6	5	SPI_MISO
SPI_CLK	4	3	SPI_CS#
GND	2	1	+3.3V

2.3.18 USB connector 4&5/ 6&7 (USB45/ USB67)





Signal	PIN	PIN	Signal
+5V	1	2	+5V
P5-/ P7-	3	4	P4-/ P6-
P5+/ P7+	5	6	P4+/ P6+
GND	7	8	GND
		10	NC